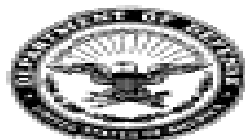


CLF/CPF
Troubled Systems Process

For
Common Assessment Process
Team

26 July 2004



DEPARTMENT OF THE NAVY

COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA. 23551-2487

COMFLTFORCOM
4700
SER N43/ 054
14 Aug 03

From: Commander, Fleet Forces Command (N43)

Subj: TROUBLED SYSTEMS PROCESS (TSP) PROGRAM CHARTER

Ref: (a) CINCLANTFLT ltr 4700 Ser N435/00516 of 19 Aug 92/
CINCPACFLT ltr 4700 Ser 4315/07073 of 27 Aug 92

Encl: (1) Program Charter for the Combat Systems Troubled
Systems Process (TSP)

1. Enclosure (1) is promulgated to formally establish the Combat Systems Troubled Systems Process (TSP). All participants will use this charter in the execution and future direction of the program.

2. Ten years ago, the Fleet established the Combat Systems Troubled Systems Process in order to quantitatively assess and formally provide documentation to responsible Systems Commands and their associated field activities those systems that are performing at a level which do not support Fleet requirements. The Chief of Naval Operations implemented the process Navy-wide, and reference (a) is the joint letter that promulgated the original charter for TSP.

3. Since that time, the program has expanded to include a large selection of command, control, communications, computer, combat systems, intelligence, surveillance, and reconnaissance (C5ISR) systems installed on surface ships, submarines, and aircraft carriers. A Board of Directors co-chaired by the Fleet Maintenance Officers manages the program. Enclosure (1) describes the organization of the Board of Directors and the Technical Advisory Group.

4. Enclosure (1) is effective immediately and will be the guiding document for TSP until further notice.


D. E. BAUGH

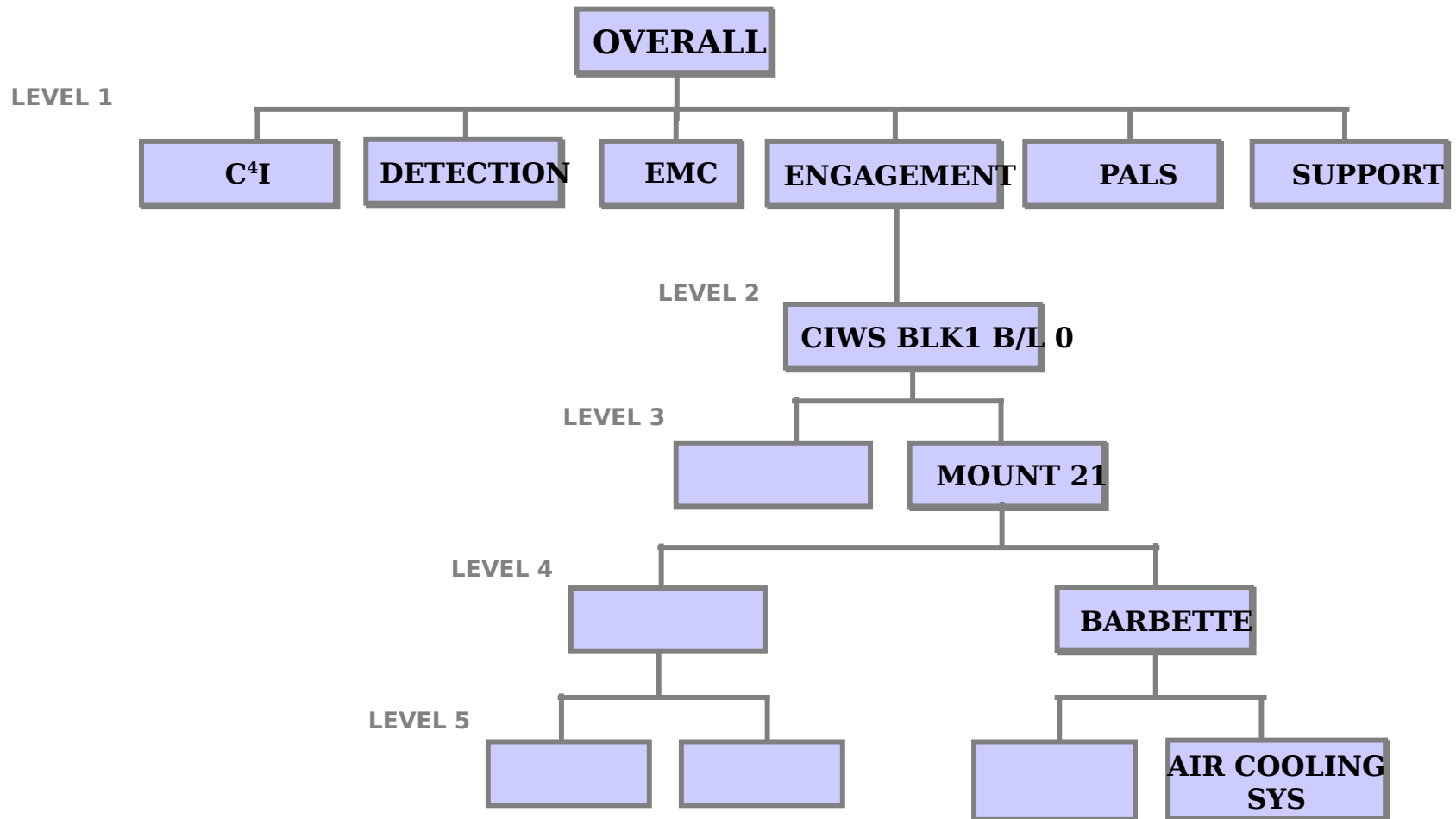
TSP PURPOSE

- A Fleet Initiative and Perspective
- Maintenance Burden Emphasis
- CNO Directed
- A Fleet Tool for:
 - Identifying Navy-wide Troubled Systems
 - Problem Identification and Correction
 - Providing Feedback from Fleet to PM on Equipment Maintenance Issues
- Scope is all Combat Systems and C4I on all Platforms
- Post CNO Availability C5RA (SURF), C5RA (SUB/AIR)

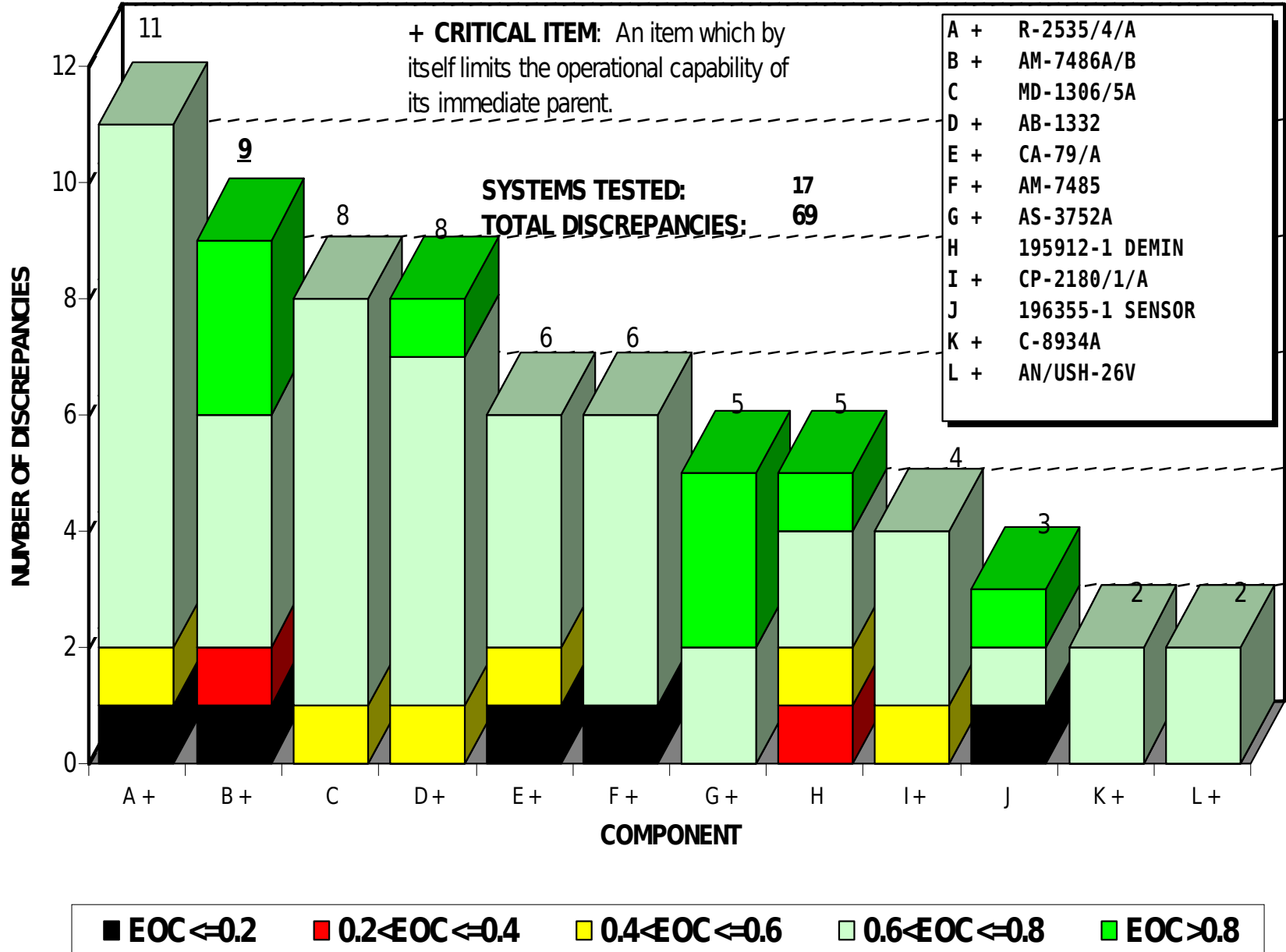
DATA UTILIZATION IN SUPPORT OF TSP

- DATA SOURCES & PROCESSING
 - MONTHLY CASREP PROCESSING
 - CONTINUOUS INSURV PROCESSING
 - CONTINUOUS CSRR/C5RA PROCESSING
 - QUARTERLY TECH ASSIST PROCESSING
- ASSUMES TYCOM COLLECTION OF PCAC5RA/C5RA DATA IAW TSP MODEL

TSP EQUIPMENT BREAKDOWN MODEL



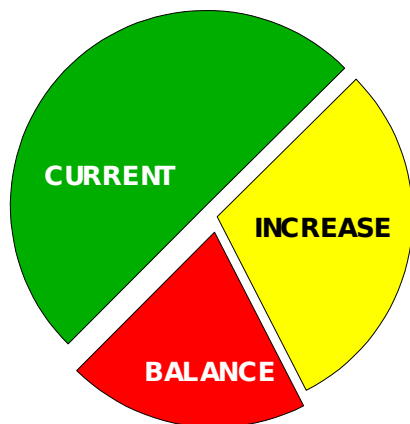
AN/SPS-48E SECOND STAGE AMPLIFIER AM-7486A/B



EOC SENSITIVITY

AN/SPS-48E RADAR

PRE-
EOC
0.50



Remaining
PRE-EOC
0.20

Expected PRE-
EOC increase
when all listed
items are
repaired = (0.30)

Message: Eliminate discrepancies in the listed components (CSRR Drivers) and increase the average system PRE-EOC from 0.50 to 0.80 (0.30 increase).

Δ EOC

COMPONENT
(CSRR DRIVERS)

0.10

AM-7486/7/A/B*



0.02

AB-1332*

0.01

AS-3752/A*

0.01

R-2535A*

0.01

ID-2372

0.00

MD-1306A

0.00

195912-1 DEMIN

0.00

WAVEGUIDE

* Indicates critical components

The piechart on the left represents the total average PRE-EOC possible (1.0) for the System, broken out by:

“PRE-EOC”, which represents the current system PRE-EOC average;

“Expected PRE-EOC increase”, which represents the expected increase when all the listed components are fixed;

“Remaining PRE-EOC”, once the listed components are fixed, the average PRE-EOC would increase by this amount (the balance) if the rest of the components (not listed) were fixed.

“ΔEOC”, represents the average system PRE-EOC increase when only the single listed component is fixed. Generally, the effect of fixing all the listed components at one time is greater than the combined effect of fixing one component at a time.

FLEET PANEL REVIEW

- TYCOMS PROVIDE:
 - CONFIRMING/NOMINATING F/P PROPOSED SYSTEMS FOR REVIEW
 - COORDINATION WITH HOSTING ACTIVITY
 - PROVIDE F/P NOTIFICATION TO TECHNICAL COMMUNITY, TO INCLUDE SITE COORDINATION
 - PROVIDE F/P PERSONNEL (CHAIRPERSON AT A MINIMUM)
 - REVIEW OF FINDINGS
 - TYCOM ACTIONS IN PROGRESS (AT LEAST ONCE PER YEAR PER NON-F/P REVIEWED SYSTEM)
 - ENSURE TSP TRAINING CONDUCTED AT FTSC'S

**AN/SPS-48E Second Stage Amp.
ANALYSIS
Date Range: July 1999 - Dec.
2000**

There are five problems for the AN/SPS-48E which will be reviewed at the TMA/TMI Mid-Cycle Review in February 01.

Example: (CS-971-2-15 - Second Stage Cross Field Amp.)

TMA/TMI proposed solution is "BOSS". Replacement cost is \$13.5K(OARS).

Current EOC = .34

Tested (CSRR) = 17

CSRR data shows 6 out of 6 failures during CY2000 and 9 out of 17 over the past 18 months. There were 16 out of 28 failures in a prior 18 months.

High failure rate has not decreased.

High failure rate is due either to poor manufacturing design or improper alignment.

Conclusion:

TMA Problem #15 and Problem #11 (inadequate training) address poor CFA reliability. Data indicates continued high failure rate and

TSP AND TMA RELATIONSHIP

- TSP REPORT GENERATED ANNUALLY (RED BOOK)
- ISSUES WARRANTING HIGHER LEVEL ATTENTION FORWARDED TO TMA
- TSP IS THE FRONT END OF THE TMA/TMI PROCESS FOR C/S

TSP ISSUES WHICH NEED TO BE ADDRESSED

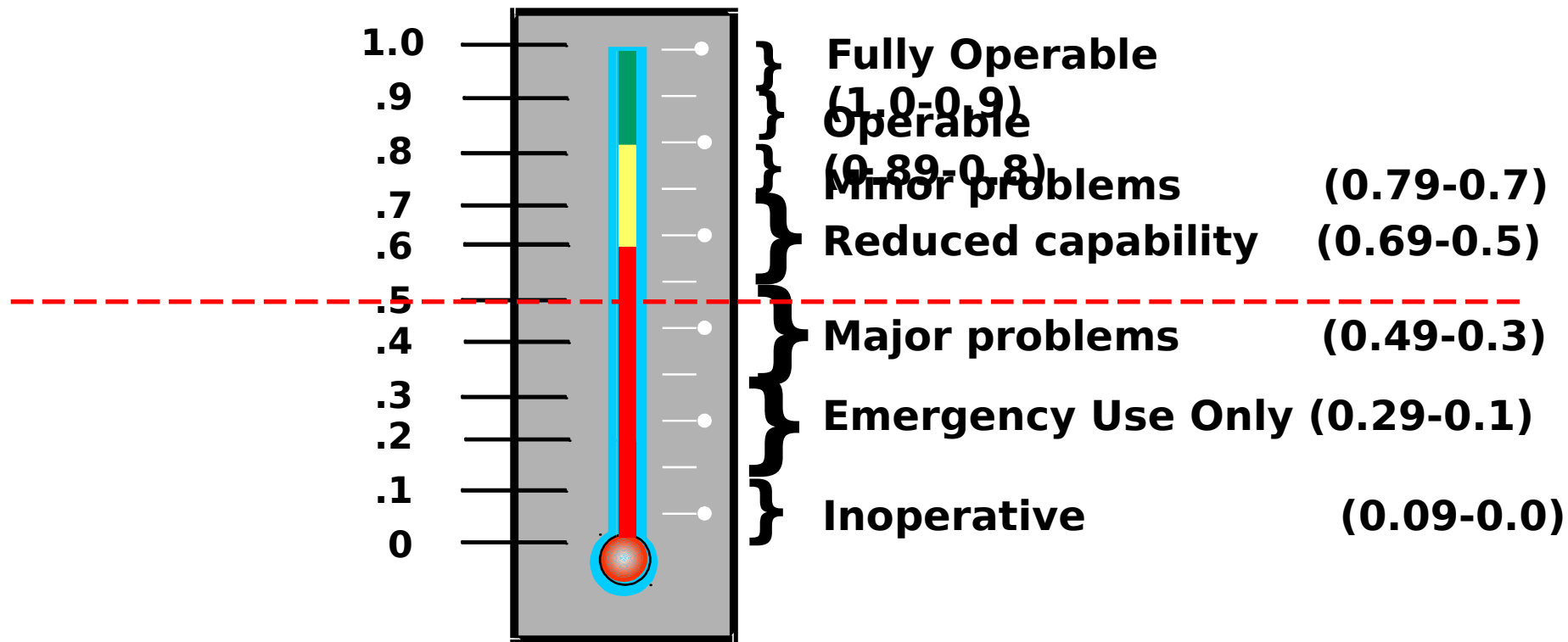
- These are not all inclusive:
 - How will Standard Statements and EOC relationships be developed
 - How will NSWC Corona execute data compilation for Troubled Systems Lists
 - How will Fleet Panels be convened and data provided
 - Will the EOC assignment provide sufficient granularity to make informed decisions on equipment having problems

Equipment Operational Capability (EOC)

ISSUE

- e-Mail 09 Dec 03 from Capt. Metz
- e-Mail 30 Jan 04 from Mr. Jacobs
 - From an assessor's viewpoint, rather than an operator's view point, I'd like to be able to give our ISEs a reference point of what passing is during an assessment with respect to EOC values. I suggest that we consider the idea that a passing score is 0.5 and above which equates to the Reduced Capability category, and that unacceptable is 0.49 and below (Major Problems category). Let me know what you think.

Equipment Operational Capability (EOC)



EOC = A dimensionless numeric value. EOC is determined by a measured objective evidence of a ship component or system compared to a standard such as a design criteria or normal operating parameters. Measured objective evidence is obtained using Scripted Standardized Assessment Procedure.

First Order Definitions

- **Cosmetic Discrepancy** – Discrepancy that will never impact equipment function even if left over the Inter Deployment Readiness Cycle
- **Minor Discrepancy** – Does not currently impact function, but could grow into a major defect if left unattended over the Inter Deployment Readiness Cycle
- **Major Discrepancy** – Impacts equipment function.

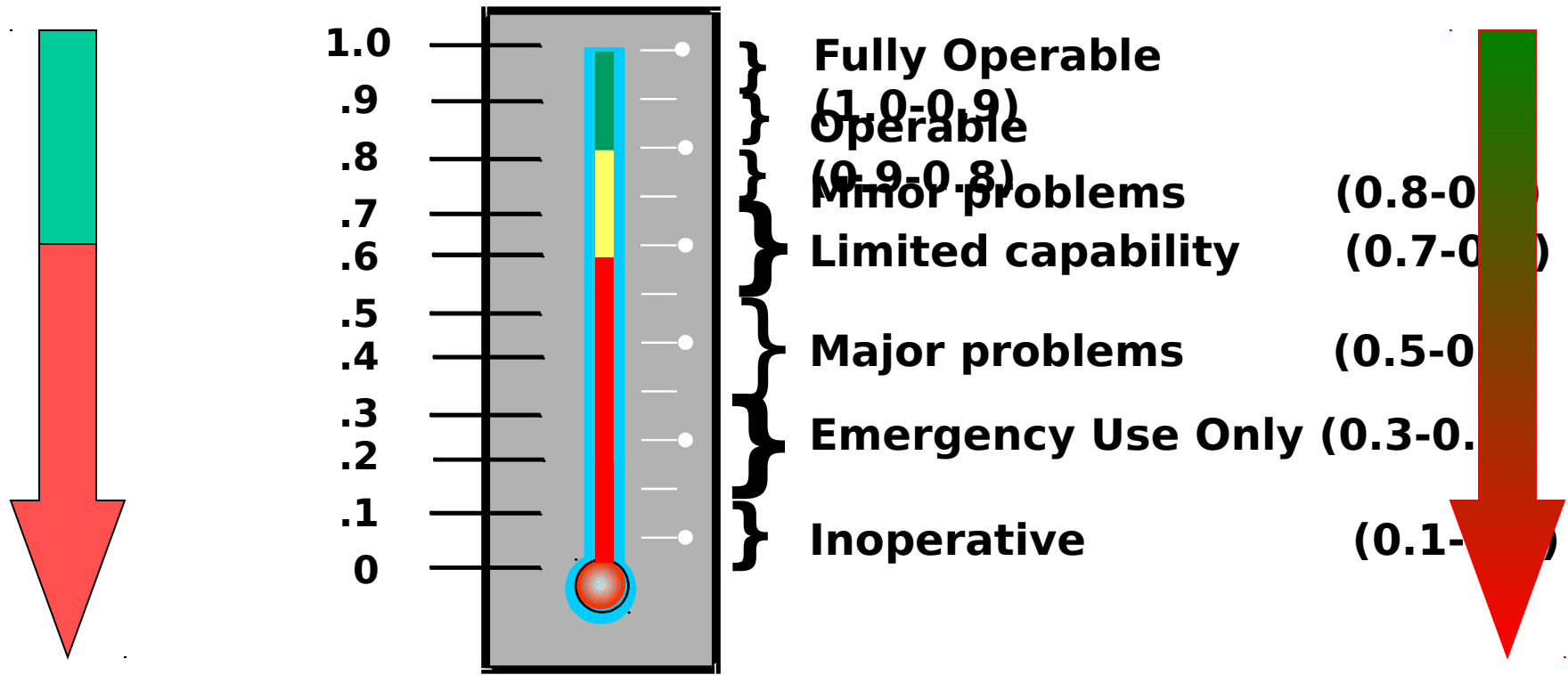
Proposed Definitions

- **Fully Operable** – (Proposed Definition) System or equipment capable of performing all required functions with only cosmetic discrepancies. (1.0-0.9)
- **Operable** - (Proposed Definition) System or equipment capable of performing all required functions with minor discrepancies. (0.89-0.8)
- **Minor Problems** – (Proposed Definition) System or equipment functions when required without modification of operating instructions and procedures. Minor discrepancies are likely to impede function in the near term. (0.79-0.7)

Proposed Definitions

- **Reduced Capability*** – (Proposed Definition) System or equipment is capable of performing intended functions, but not at full operational requirements, or not capable of performing required functions in all operating modes. (0.69-0.5)
* Category name changed from Limited to Reduced Capability to conform with INSURV assessment categories.
- **Major Problems** (Proposed Definition) System or equipment cannot perform one or more intended functions. Functions may be restricted by time, environmental or operational conditions. (0.49-0.3)
- **Emergency Use Only** – (Proposed Definition) System or equipment not capable of performing intended functions using posted operating procedures (0.29-0.1)
- **Inoperative** – (Proposed Definition) System or equipment not capable of performing required functionality. (0.09-0.0)

Equipment Operational Capability (EOC)



EOC = A dimensionless numeric value. EOC is determined by a measured objective evidence of a ship component or system compared to a standard such as a design criteria or normal operating parameters. Measured objective evidence is obtained using Scripted Standardized Assessment Procedure.

NAVSEA PROPOSAL VS. EOC GUIDLINES

NAVSEA

- **Fully Operable** - (Proposed Definition) System or equipment capable of performing all required functions with only cosmetic discrepancies. (1.0-0.9)
- **Operable** - (Proposed Definition) System or equipment capable of performing all required functions with minor discrepancies. (0.89-0.8)
- **Minor Problems** - (Proposed Definition) System or equipment functions when required without modification of operating instructions and procedures. Minor discrepancies are likely to impede function in the near term. (0.79-0.7)



TSP

- **EOC > 0.8 OPERABLE** - Configuration item functions within the parameters of PMS and/or passes all operational tests.
- **EOC = 0.8, 0.7 MINOR PROBLEM** - Configuration item slightly below PMS and/or unable to obtain optimum operational standards .

NAVSEA PROPOSAL VS. EOC GUIDELINES

NAVSEA

- **Reduced Capability*** –
(Proposed Definition)
System or equipment is capable of performing intended functions, but not at full operational requirements, or not capable of performing required functions in all operating modes. (0.69-0.5)

* Category name changed from Limited to Reduced Capability to conform with INSURV assessment categories.

TSP

- **EOC = 0.6, 0.5 LIMITED CAPABILITY** - Configuration item fails PMS and/or operational tests and has significantly reduced output for restricted operability.

NAVSEA PROPOSAL VS. EOC GUIDLINES

NAVSEA

- **Major Problems** (Proposed Definition) System or equipment cannot perform one or more intended functions. Functions may be restricted by time, environmental or operational conditions. (0.49-0.3)
- **Emergency Use Only** – (Proposed Definition) System or equipment not capable of performing intended functions using posted operating procedures (0.29-0.1)
- **Inoperative** – (Proposed Definition) System or equipment not capable of performing required functionality. (0.09-0.0)

TSP

- **EOC = 0.4, 0.3 MAJOR PROBLEMS** - Configuration item will not operate, it may provide limited output if manually controlled.



- **EOC = 0.2, 0.1, 0 INOPERATIVE** - Configuration item will not operate

TSP TAG & BOD MEET

- Technical Advisory Group met 10-11 March 04
- TSP/MRDB Board of Directors met 15 April 04 and approved TSP TAG recommendations
- e-Mail to Mr. Jacobs on results 21 April 04
 - EOC Alignment: Navy wide adoption of EOC requires a common understanding of what EOC is and isn't, what the value means, the level/degree of subjectivity, and consistent application of standard terminology.
 - EOC Handbook, November 2000
 - www.tsp.corona.navy.mil

TSP TAG & BOD MEET(cont'd)

EOC = 1.0	Fully Operable
EOC = .9	Operable
EOC = .8, .7	Minor Problems
EOC = .6, .5	Limited Capability*
EOC = .4, .3	Major Problems
EOC = .2, .1	Inoperative
EOC = 0.0	Totally Inoperative

* IN PLACE OF "REDUCED CAPABILITY", "Emergency Use Only" will not be used as a condition classification.

TSP TAG & BOD MEET

(cont'd)

EOC = 1.0 FULLY OPERABLE: System or equipment capable of performing all required functions with only cosmetic discrepancies.

EOC = 0.9 OPERABLE: System or equipment capable of performing all required functions with minor discrepancies.

EOC = 0.8, 0.7 MINOR PROBLEMS:
System or equipment functions when required without modification of operating instructions and procedures. Minor discrepancies are likely to impede function in the near term.

TSP TAG & BOD

MEET(cont'd)

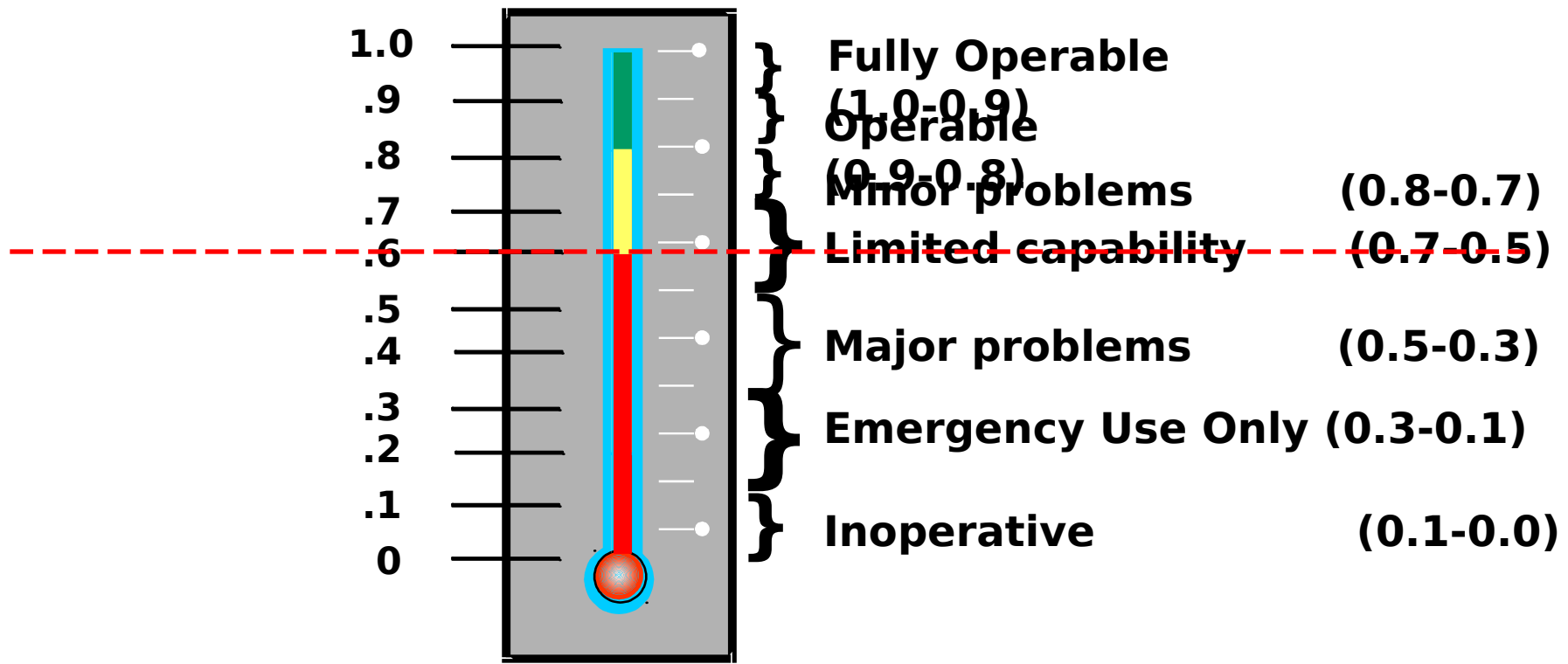
EOC = 0.6, 0.5 LIMITED CAPABILITY*: System or equipment is capable of performing intended functions, but not at full operational requirements, or not capable of performing required functions in all operating modes.

EOC = 0.4, 0.3 MAJOR PROBLEMS: System or equipment cannot perform one or more intended functions. Functions may be restricted by time, environmental or operational conditions.

EOC = 0.2, 0.1 INOPERATIVE: System or equipment not capable of performing intended functions using posted operating procedures.

EOC = 0.0 TOTALLY INOPERATIVE: System or equipment not capable of delivering any functionality

Equipment Operational Capability (EOC)



NOTE: (1) This thermometer slide was never meant to be used as an EOC assignement guidline, but as a model ROLL-UP representation.

(2) EOC should only be assigned as a single digit.

NEXT STEPS?

- EOC DOES NOT STAND ALONE AND MUST BE SUPPORTED BY INFORMATION (STANDARD STATEMENTS)
- STANDARD STATEMENTS ARE NOT CONDUCTIVE TO DATA MANIPULATION/ANALYSIS (NEED EOC METRIC)
- EOC AND STANDARD STATEMENTS MUST BE WORKED TOGETHER AS THEY ARE MUTUALLY DEPENDANT

ISEA CONCERNS

- 19 May 04, Received Mr. Bob Park's comments in e-Mail provided by Mrs. Judy ElliotBrown:

I still don't like the new EOCs. Here is why:

The AWS has a high degree of redundancy and a lot of graceful degradation, therefore the AWS will always have a lot of failures, of which VERY few are mission critical. So the AWS will typically have a lot of failures (generate a lot of EOC) to synthesize/roll together to get a system level number.

- 1) Not enough granularity for the level of redundancy and the impact on operations of one failure. For example, loss of one PSD (out of 4324) should have an EOC of 0.99 or 1.0, not 0.9, as rolling up several 0.9s will have a much more severe impact than several 0.99s. In fact, the loss of 1 PSD should have an EOC of 1.0 as there is no operational impact, however, the definitions below kind of kabosh that. Same with switch tubes, CFAs and waveguide shutters (64/CG, 32/DDG) and array power supplies (120/CG, 120/DDG). Rolling up several 0.90s will negatively bias the system number when we have had only very insignificant (or no) operational impacts.
- 2) the definitions say 'system or equipment' - that is a HUGE difference in a system with a lot of redundancy. For example, with one Driver/Pre-Driver entirely down, since the system operates with only with 2 of 3 in the RF loop at any time, the system is still fully functional. Cabinet/equipment is DOWN, yet system is fully UP ==>> TWT failure results in cabinet being down but system is fully functional - is the EOC 0.0 or 1.0, or somewhere in between? The definition needs to be clearer.

ISEA CONCERNS

- 8 July 04 Spoke with Mr. Parks:
 - Was concerned that assessors (especially S/F techs) will be assigning EOC to the systems rather than to the testable item.
 - This identifies the need to ensure that EOC is tied directly to standard statements eliminating variation in EOC assignments between techs and ensures EOC is assigned to the testable item.
 - IRT the issue of granularity in Mrs. ElliotBrown's e-mail; that is handled in the TSP model. The model has been validated, with ISEA participation. Graceful degradation of AWS is taken into consideration as it is with other systems having redundancy built into them.
 - Allowing the techs to assign a 2-digit EOC would potentially add to ambiguity and the dilution of EOC. Techs can't consistently differentiate between a .65 and .64 or a .34 and .37. Unnecessarily adds subjectivity to the metric.
 - Ensuring EOC and standard statements are tied together adds to the validity of standard statements and the assignment of EOC's eliminating to the maximum extent possible subjectivity

In Summary

- TSP or a similar process needs to continue to support FLEET concerns
- EOC assignment by assessors needs to be consistent and of high quality:
 - Standard Statement development
 - EOC relationships to Standard Statements must be developed properly
 - Training of the assessors needs to be frequent and include S/F as well as RMC and other assessors
- Access to data needs to be user friendly and easy to use. Classified/Unclassified?
- Transition to a singular data repository and user interfaces will contribute to common conclusions by all (ISEA, PO, FLEET, RMC, etc.....)